AIAA 2015

Remarks for Administrator Bolden

June 24, 2015

Good morning Aviation 2015!

We have a few of members of Team NASA at this conference and I hope in particularly you'll stick around to hear from Dr. Jaiwon Shin who runs NASA's Aeronautics Mission Directorate and Bob Pearce – our Director for Strategy, Architecture and Analysis. They'll be participating at Forum 360 later this morning and – trust me on this -- you won't want to miss it.

To everyone with AIAA, thank you for putting on such an outstanding conference, and for all the work you do on behalf of our field. As a pilot myself, your work has always been near and dear to my heart.

I believe I saw a few of you last week at the Paris Air Show. I must say that feeling the energy there and sensing the energy in this room – it's a reminder of what an exciting time this is to be working in the aerospace field.

I can tell you that there are about 1.5 trillion reasons why I say that. Now, I know you know this – but as Dr. King is said to have taught, sometimes it's important to preach to the choir, because otherwise they might stop singing. Aviation generates more than $1.5 trillion – with a "T" – in economic activity each year. It supports more than 11.8 million jobs (both directly and indirectly) and as an engine of commerce, it transports 18.1 billion tons of freight year-after-year.

Although my French is a little rusty – even after returning from overseas – I believe the term for all this is "*une grosse affaire*," or in English, "a big deal."

I always enjoy coming to this event. I was with you last in 2013. Those of you who were with us then – or with whom I've had the pleasure of meeting since – have probably heard me say that "NASA is with you when you fly" … and unlike jetlag, we're with you in a good way.

I say that because every American aircraft and every American air traffic control tower is equipped with technology that was developed by NASA.

These technologies save lives, save resources – and in fact, when you consider the impact that green aviation can have on our environment, I think it's fair to say that they're saving our planet as well.

Just last week, our friends from Boeing flew their ecoDemonstrator plane up from Washington State to the Langley Research Center.

For the past several years we've partnered with them to test several technologies. In one of my personal favorite examples, we flight tested non-stick coatings formulated to reduce the buildup of residue from -- I believe the scientific term is “bug guts" – on the leading edges of aircraft wings. One of these coatings actually reduced bug residue by 40% versus control surfaces. If we’re able to deploy effective non-stick coatings across the board, it could save fuel and money – not to mention a lot of bug lives.

The bottom line is that if you’re working on efficiency … if you’re working on green aviation … if you’re working to reduce noise and increase safety – and I know that you are – then we at NASA want to work with you.

Our goal is not only to be with you when you fly – but as you innovate in flight.

T-S-A-S ANNOUNCEMENT

Now, a lot can happen in two years …

You know when you're watching a television show they give you a few scenes from the previous episodes? This is the part of our program this morning when I get to remind you that when we last met here at this conference, I talked about where we're headed at NASA in terms of aviation research.

I talked about safe, efficient growth in global operations, innovation in commercial supersonic aircraft, ultra-efficient commercial vehicles and transitioning to low-carbon propulsion. We also spoke about NASA's research into real-time, system-wide safety assurance as well as Unmanned Aircraft Systems – or UAS's – an area where NASA is doing work that nobody else is doing.

Thanks in large part to our partnerships with a number of your companies and organizations, we've made some very real progress in all of these areas.

Now, I could run through all of them, but I don't want to still be talking when my friends Jaiwon and Bob start their panel. I'd be a lousy opening act if I put you all to sleep before their turn at the mike!

Instead, what I thought I'd do is highlight just a few areas that I think will be of particular interest and if you have interest in a few of the other areas we can get to them during the Q&A.

The first regards that first research thrust I mentioned. "Safety and efficiency" are priorities we can all get behind – and in fact, we all do. When it comes to safe, efficient growth in global operations, I have some big news to share with you.

Today, we're able to announce that our friends and partners at the Federal Aviation Administration (FAA) are moving forward with a "full investment decision" on what we call "Terminal Sequencing and Spacing" or T–S–A –S. That's a really fancy name for what is a very valuable piece of computer software. It's designed to help air traffic controllers manage aerospace within five miles from a major airport.

Here's the really exciting news: It will help pilots to fly continuous-descent, fuel-efficient approaches toward the airport. What's more, it will safely permit more flights to merge together at a point where they can be cleared for final approach and landing.

The airlines – they stand to save money from this in fuel expenses.

The air we breathe – it will get all that more clean as we reduce emissions.

All of us stand to benefit as we reduce air traffic congestion and also ease the workload of our friends in air traffic control.

The FAA's plan is to deploy T-S-A-S between 2018 and 2022 to nine major international airports located in Phoenix, Houston, Atlanta, Seattle, San Francisco, Las Vegas, Charlotte, Denver and Los Angeles. This sets the stage for full-scale implementation. Eventually we want to see T-S-A-S implemented across our entire national airspace system.

ULTRA-EFFICIENT COMMERICAL VEHICLES

So that's some exciting news when it comes to safety and efficiency. I also wanted to give you an update on another area where we're reaching some fairly exciting heights.

Show of hands, are any of you here with us in this room grandparents like me? How many of you are parents?

When we think about the sort of world we will leave to our children and grandchildren and their children and their grandchildren – I think all of us can agree that they ought be able to breathe clean air or live in a world that's not devastated by the effects of changing climate.

You might have seen what Pope Francis wrote in his encyclical on the environment this month. I quote "*Never have we so hurt and mistreated our common home as we have in the last 200 years … Yet all is not lost. Human beings, while capable of the worst, are also capable of rising above themselves, choosing again what is good, and making a new start."*

It's for this reason, that any conversation about future of aviation, has to begin with "green aviation."

Over the last six years, NASA invested $410 million in what we call our Environmentally Responsible Aviation Project. And you know what? We didn't go it alone. You and your colleagues invested an additional $224 million too.

Eight major projects have come out of this research and taken together, they could help us realize over 80 billion gallons of fuel saved through 2050. This would not only result in saving the airlines and travelers hundreds of billions in expenses – it could save the environment from almost one billion – billion with a "b" – tons of CO2 emissions.

SUPERSONIC AIRCRAFT

Before I wrap up, I have just one more area that I wanted to discuss with you: Commercial supersonic aircraft.

Those of you who fly a lot – like I used to do – know that as amazing as it is to be able to fly across the globe in 12, 13, 14 hours – it's also exhausting and it takes a toll on our productivity.

We've been flying "subsonic" for so long it's easy to think this is as fast as we're ever going to travel, short of teleportation. The one foray into commercial supersonic flight – the Concorde – never materialized as a real transportation solution.

While the will and the business case for flying supersonic may have faltered, the technology to make it happen hasn't. We at NASA are working to solve the sonic boom problem so industry can start innovating in supersonic transportation.

As you may know, our scientists have developed the computational methods to accurately design the aircraft shape to minimize the boom.

So far, we've validated the methods and design in wind-tunnel tests. On the industry side, it looks like the teams working on low boom flight demonstration designs can beat the low boom target.

My hope, therefore, is that we can form a partnership with you and your colleagues in industry to actually build and fly the demonstrator. We have a request for information out right now, and we'll have an industry day next month to see if together, we can move this forward.

I truly believe that the day will come when the prohibition against supersonic flight over land is no longer necessary … when a low-boom signature is no longer a dream, but a reality.

CONCLUSION

These are just a few of the areas where we're making tremendous progress – and as I said a moment ago, if you have questions on some of the others, I'm happy to tackle them during the Q&A.

At the end of the day, this is a great time to be working in the field of aerospace. As someone who works on both the aviation side and the space side of "aerospace" I can attest that the progress we're making in our own atmosphere is empowering our Journey to Mars beyond it.

In fact, we're closer to Mars that any point in human history – and if you look at what's been going on, there's a new consensus that's emerging around NASA's plan and timetable for sending American astronauts to the Red Planet by the 2030s.

Thank you all once again for all that you do. I look forward to answering whatever questions you may have.